

FIG. 1

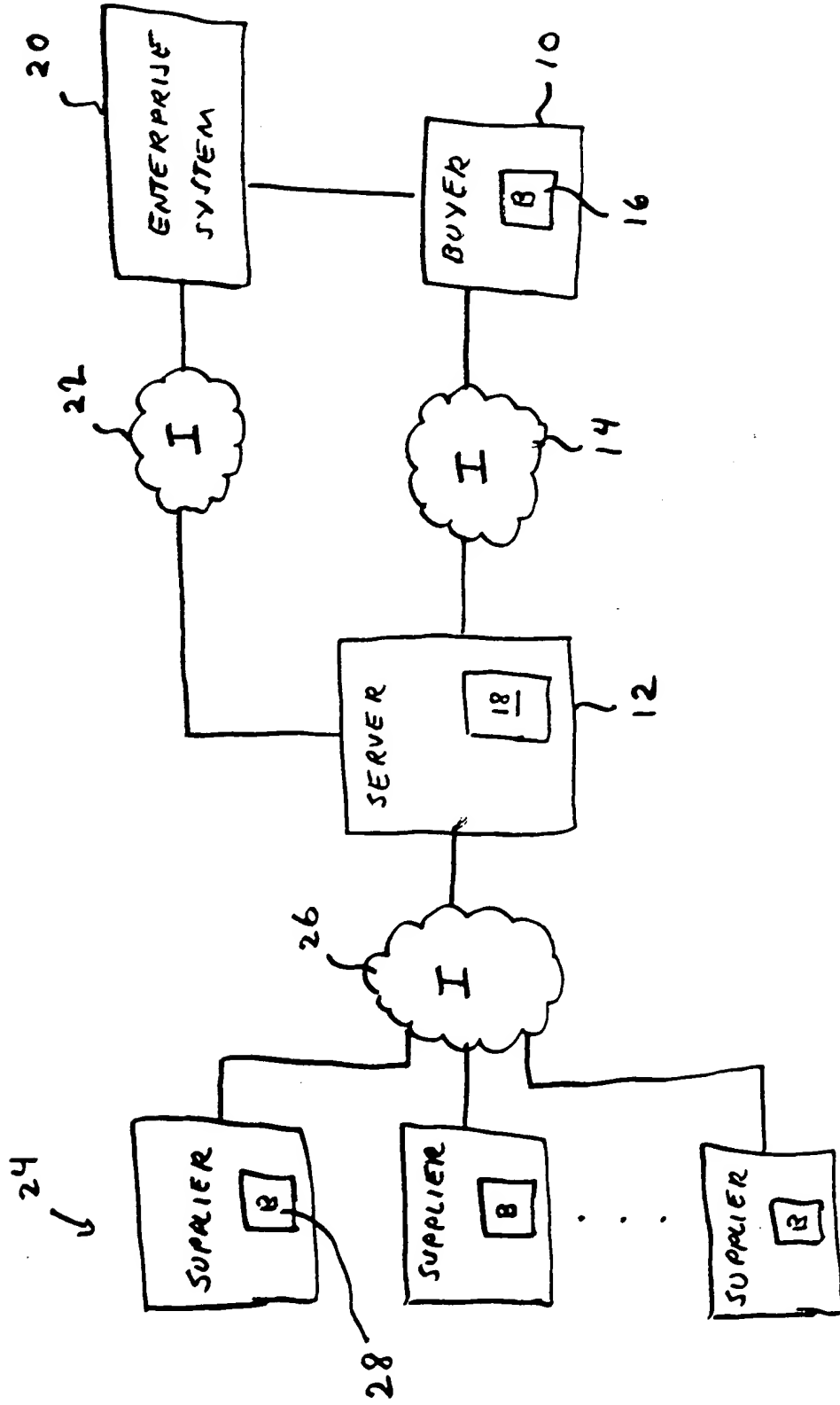
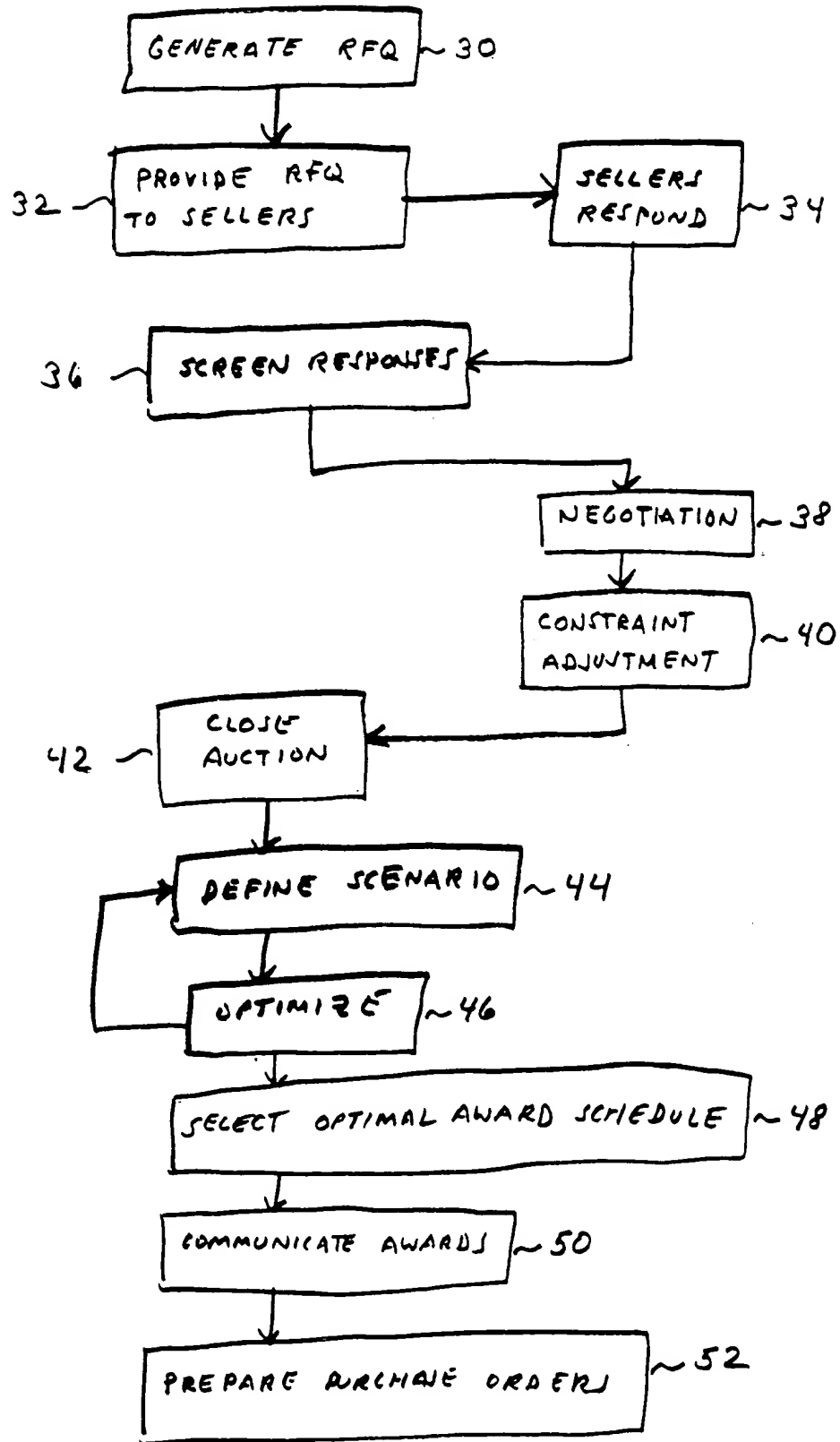


FIG. 1



**FIG 2**

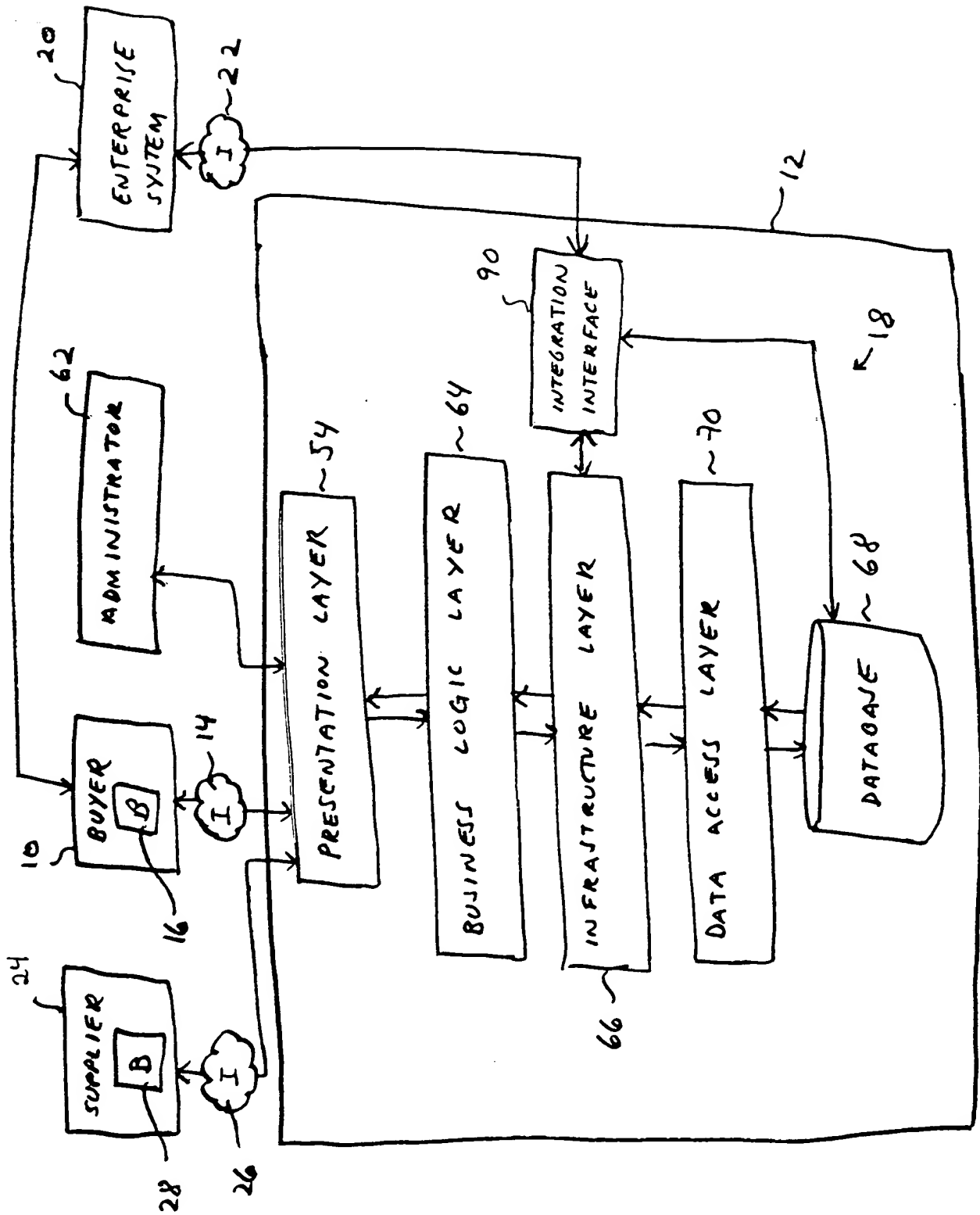


FIG. 3

FIG. 4 is a block diagram of a system architecture for a supply chain management system. The system is organized into several functional layers and components.

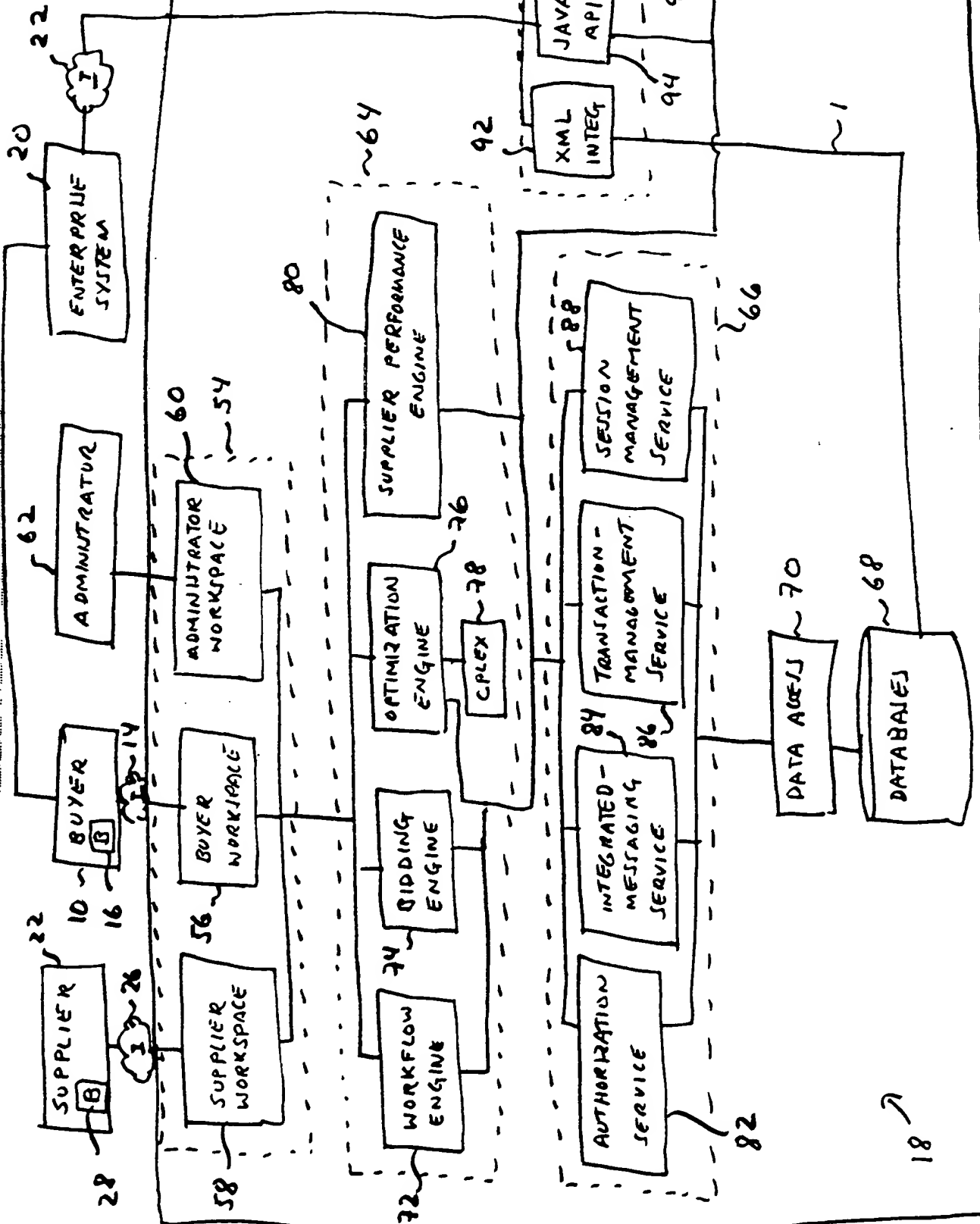


FIG 4

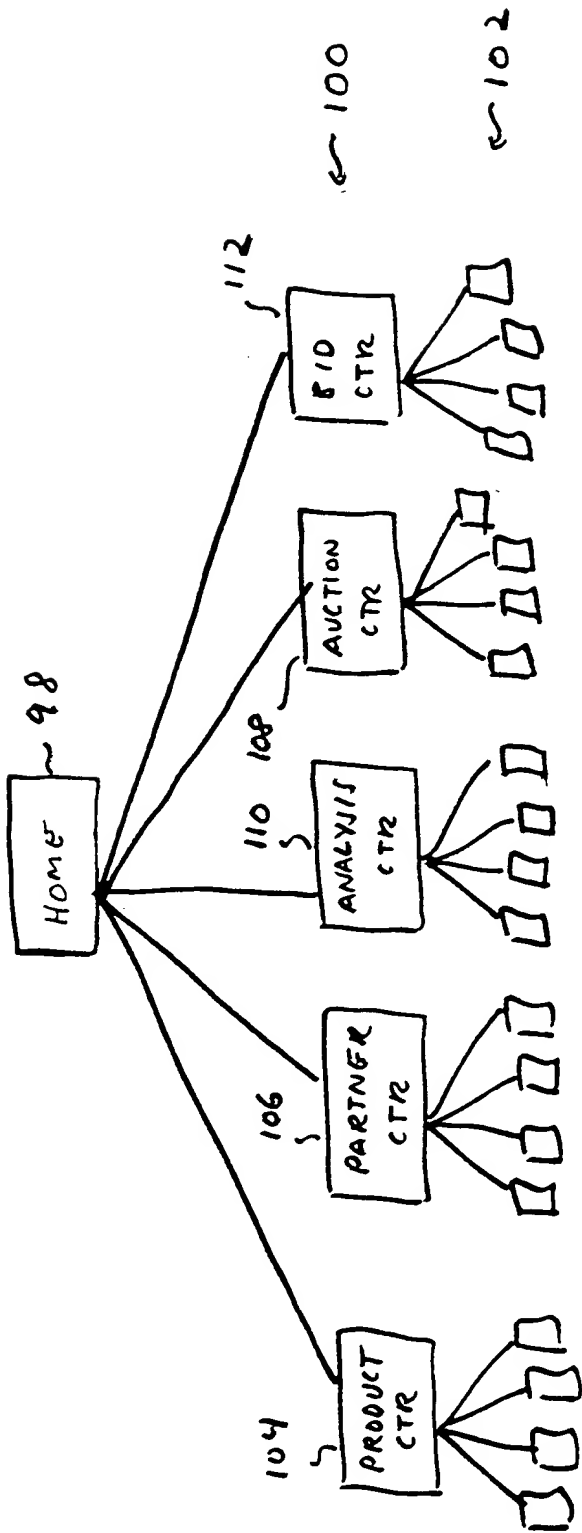


FIG. 5



**FIG. 6**

OFFICE FURNITURE

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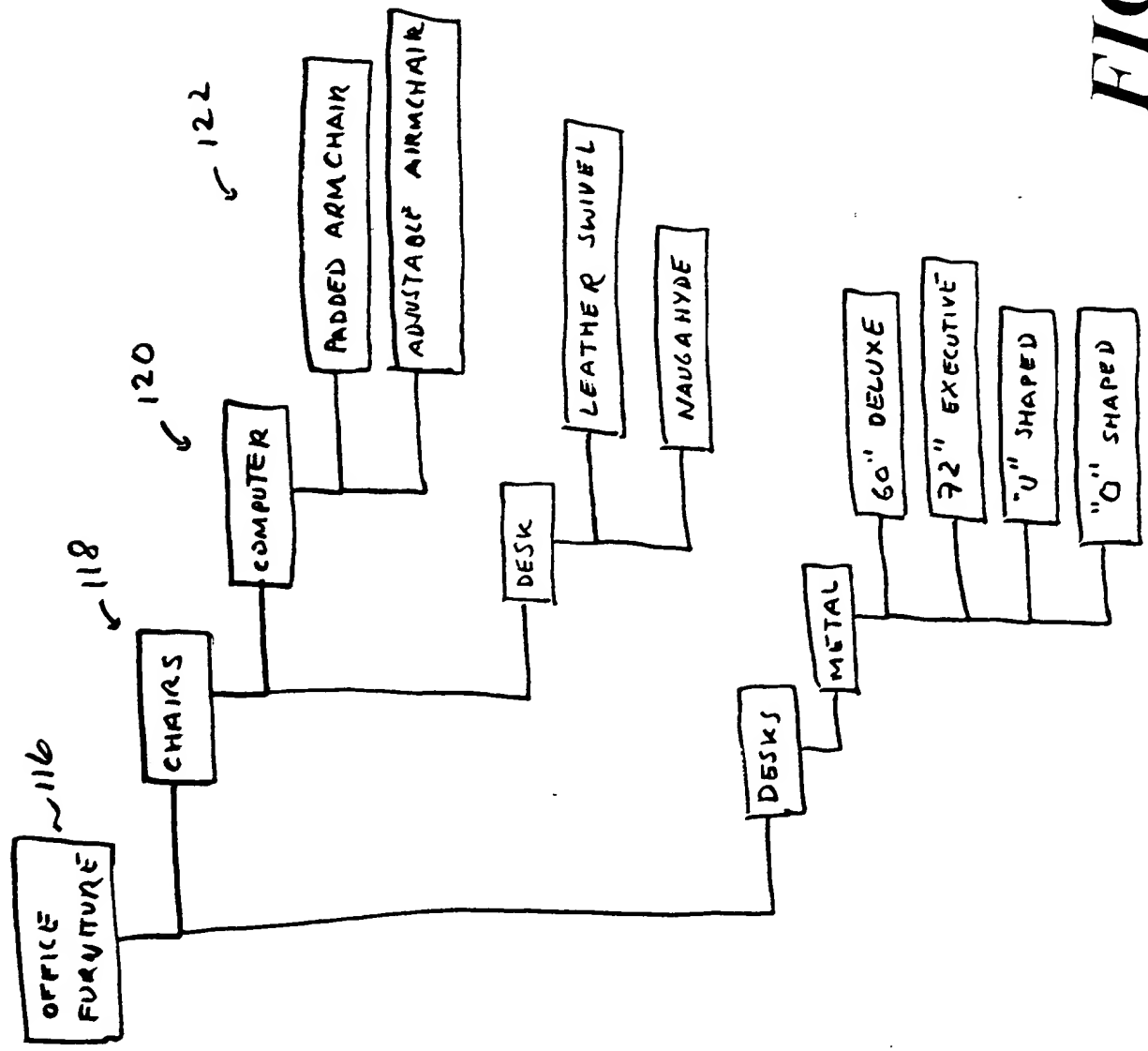


FIG 7

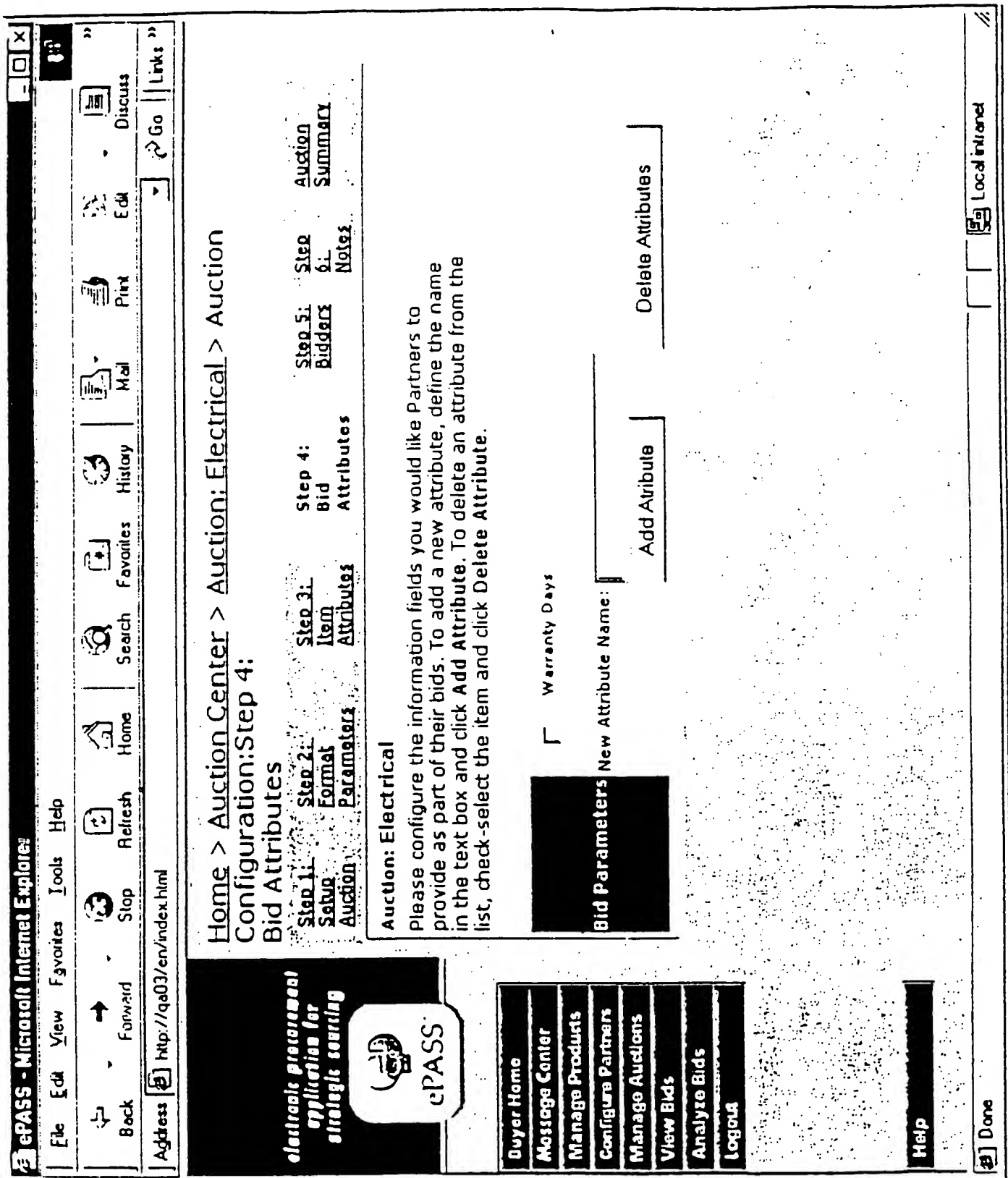


FIG. 8



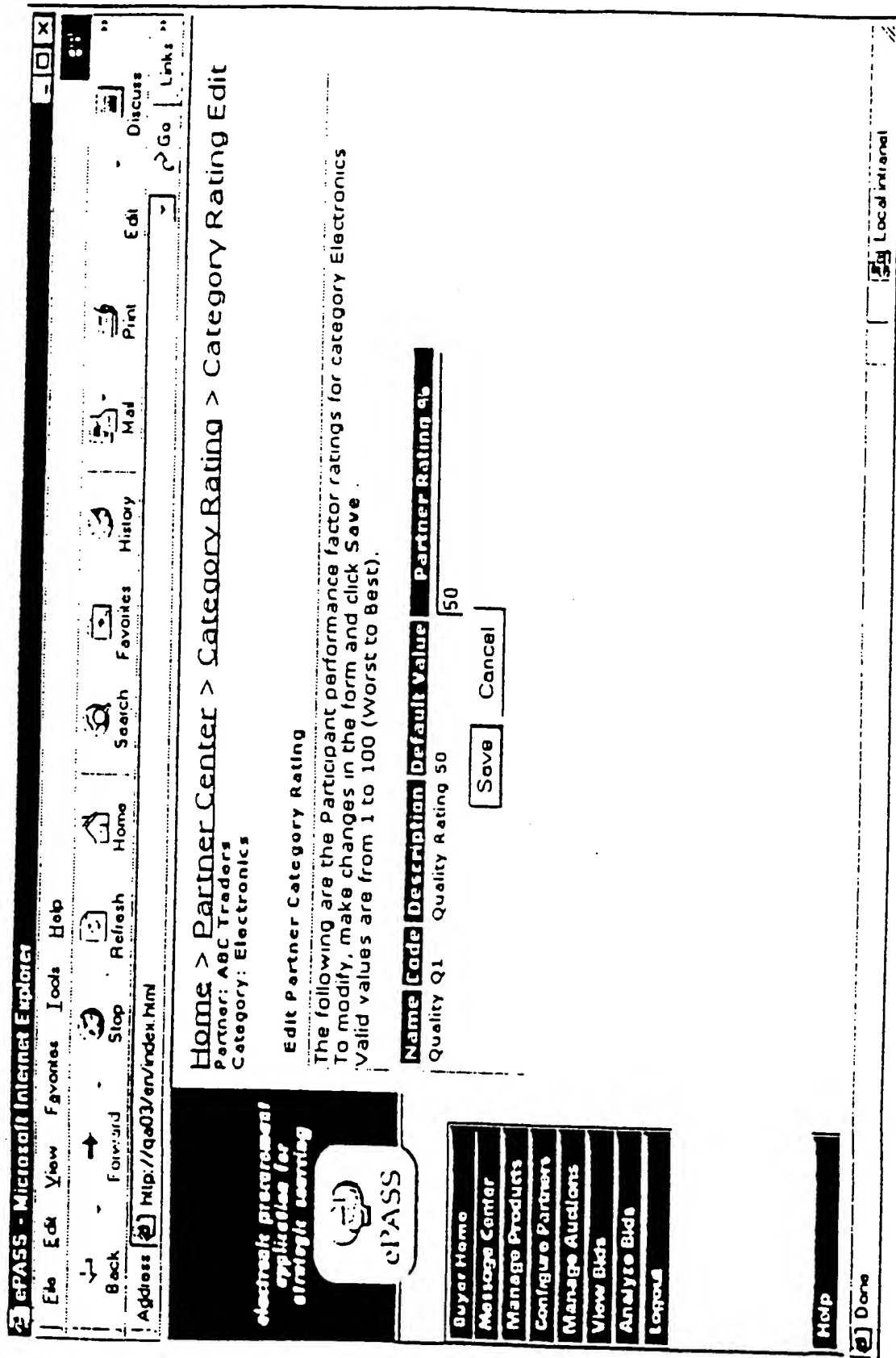


FIG. 9



**FIG. 10**

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electronic procurement application for strategic sourcing
ePASS

Buyer Home
Manage Center
Manage Products
Configure Partners
Manage Auctions
View Bids
Analyze Bids
Logout

Help

Home > Auction Center > Supplies

Auction Dates

Open Auction for bidding

Populate the dates below to specify the opening and closing time of the auction. When done, click Open Later to update the database. Click Cancel to cancel any changes. The Now buttons will put today's date into the corresponding date selection lists.

Click Open Right Now to open the auction immediately.

The following rules apply:

1. An auction can NOT be started if:
  - a. You do not have management privileges
  - b. There are no requisitions or items defined for the auction.
  - c. If the auction is a sealed type and there are no Participants approved for the auction.
2. Opening date can not be modified if the auction has already started.
3. Closing date does not have to be specified.
4. The closing date cannot be before the opening date.

Open Date

Month

Day

Year

Hour

Minute

Clear

May
11
2000
12
00
Now

Close Date

Month

Day

Year

Hour

Minute

Clear

Jun
11
2000
12
00
Now

Open Later

Cancel

Open Right Now

Done Local intranet

FIG. 11




ePASS - Microsoft Internet Explorer

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electronic procurement application for strategic sourcing

 ePASS

Supplier Home

Message Center

View Bids

Logout

Help

Home > Bid Center > Auction: Supplies2 > Requisition Items: Req 1

**Auction Info**

<b>Auction Name</b>	Supplies2
<b>Auction Status</b>	Open
<b>Auction Type</b>	Dutch
<b>Show All Bidders</b>	No
<b>Start Date</b>	05/11/2000 15:48
<b>End Date</b>	07/11/2000 16:00

**View Requisition Items**

The following line items are in the requisition.

1-3 of 3

Level	Item	Type	Category	Description	Desired Qty	Price	Action
	Pencils	Single Item	sshcatt	# 2 Pencils	1,000		<a href="#">Bid Messages</a>
	Lined Paper	Single Item	sshcatt	8/11 Lined Paper White	100		<a href="#">Bid Messages</a>
	Fax Paper	Single Item	sshcatt	Fax Paper 8/11	1,000		<a href="#">Bid Messages</a>

Done Local intranet

FIG. 13



**FIG. 15A**





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[History](#)
[Mail](#)
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[Discuss](#)
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[Address](#)
[http://qa02/en/index.html](#)

[Home](#)
[Bid Center](#)
[Auction: Electrical](#)
[Requisition: real > Item: 30 AMP Breakers](#)

[Auction Info](#)

<b>Auction Name</b>	Electrical
<b>Auction Status</b>	Open
<b>Auction Type</b>	Sealed
<b>Close All Bidders</b>	No
<b>Start Date</b>	05/11/2000 14:25
<b>End Date</b>	07/11/2000 14:30

[Item Details](#)

<b>Product Category</b>	Electrical
<b>Name</b>	30 AMP Breakers
<b>Code</b>	8K30A101
<b>Description</b>	30 AMP Circuit Breaker
<b>Minimum Desired Quantity</b>	40
<b>Maximum Desired Quantity</b>	
<b>Price Quote Unit</b>	
<b>Lot Size</b>	
<b>Required Delivery Date</b>	

[View Bids](#)

The following are the current bids for this item.

1-5 of 5

Bidder	Organization	Bid Type	Bundle Code	Min Bid Quantity	Max Bid Quantity	Price Per Unit	One Time Charge
Harvey Sales	ABC Co	Single Item Bid		40	100	\$5.00	\$0.00

[Help](#)

[Done](#)

FIG. 16A





**FIG. 17**

**2. Requisition: Construction**  
**(Demonstrate Bundle Bid)**

<u>Item</u>	<u>Qty</u>		<u>Bid 1</u>		<u>Bid 2</u>		<u>Bid 3</u>	
	<u>Desired</u>		<u>ABC Co.</u>		<u>BestDeal</u>		<u>Surfin</u>	
2x4x8	400		400	1.25	400	1.25	400	400
2x12x10	1000		1000	5.00	1000	4.50	1000	1000
PW 4x8x1/2	100		100	25.00	100	25.00	100	100
<u>Bundled @ \$7350</u>								

**FIG. 18**

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Address http://qs03/cv/index.html
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strategic sourcing

ePASS

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Message Center  
View Bids  
Logout  
Help

Home > Bid Center > Auction: Construction > Requisition Items: REQ1

Auction Info

Auction Name	Construction
Auction Status	Open
Auction Type	Sealed
Show All Bidders	No
Start Date	05/11/2000 14:31
End Date	07/11/2000 14:30

View Requisition Items

The following line items are in the requisition.

1-3 of 3

Level	Selection	Item	Type	Category	Description	Desired Qty	Price	Action
	<input checked="" type="checkbox"/>	2x4x8	Single Item	sshcatt	Lumber 2 x 4 x 8 Ft	400		<a href="#">Bid</a>
	<input checked="" type="checkbox"/>	2x12x10	Single Item	sshcatt	Lumber 2 x 12 x 10 FT	1,000		<a href="#">Messages</a>
	<input checked="" type="checkbox"/>	PW 4x8x1/2	Single Item	sshcatt	Plywood 4 x 8 x 1/2 in	100		<a href="#">Bid</a>
							Select All   Unselect All   Switch All	

Create Bundled Bid

Local intranet

FIG. 19

Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss Mail Home

Address <http://qa03/cv/bidwin.html> Go

Home > Bid Center > REQ: Construction > Requisition: REQ1 > Create Bundled Bid



Supplier Name  
Message Center  
View Bids  
Logout

Help

Auction Info

Auction Name	Construction
Auction Status	Open
Auction Type	Sealed
Show All Bidders	No
Start Date	05/11/2000 14:31
End Date	07/11/2000 14:30

Create Bundled Bid

Enter the product Quantity per Bundle, Price per Bundle, and any other fields before clicking the Submit button:

Bundle Description:

Seller Bundle Code	Bundle of Materials
Comment	Bundled bid for Req 1 of Construction APO

Bundle Composition:

Buyer		Seller	
Line Item	Name	Desired Quantity	Quantity per Bundle
020408	2x4x10	400	400
021210	2x12x10	1,000	1000
0408005	2W 4x8x1/2	100	100

Total Materials

FIG. 20A

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[Search](#)
[Favorites](#)
[History](#)
[Mail](#)
[Print](#)
[E&S](#)
[Discs](#)
[Mail Home](#)

[Go](#)

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[Favorites](#)
[Tools](#)
[Help](#)

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[Stop](#)
[Refresh](#)
[Home](#)
[Search](#)
[Favorites](#)
[History](#)
[Mail](#)
[Print](#)
[E&S](#)
[Discs](#)
[Mail Home](#)

[Go](#)

[http://qa03/en/ceden.html](#)

[Show All Brackets](#)

[Start Date](#) 05/11/2000 14:31
 [End Date](#) 07/11/2000 14:30

[Create Bundled Bid](#)

[Supplier Name](#)  
[Message Center](#)  
[View Bids](#)  
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[Seller Bundle Code](#)  
[Comment](#)

[Bundled Bid for Req 1  
of Construction R7Q](#)

[Bundle Description:](#)  
[Bundle of Materials](#)

[Enter the product Quantity per Bundle, Price per Bundle, and any other fields before clicking the Submit button:](#)

[Bundle Composition:](#)

Line Item	Buyer	Name	Desired Quantity	Quantity per Bundle	Product Code
020408		2x4x8	400	400	021190
021210		2x12x10	1,000	1000	090121
0408005		2x4x8x12	100	100	902019

[Bundle Pricing:](#)

Number of Bundles	Price per Bundle	One-Time Charge
10	7350	

[Save](#)
[Cancel](#)

FIG. 20B

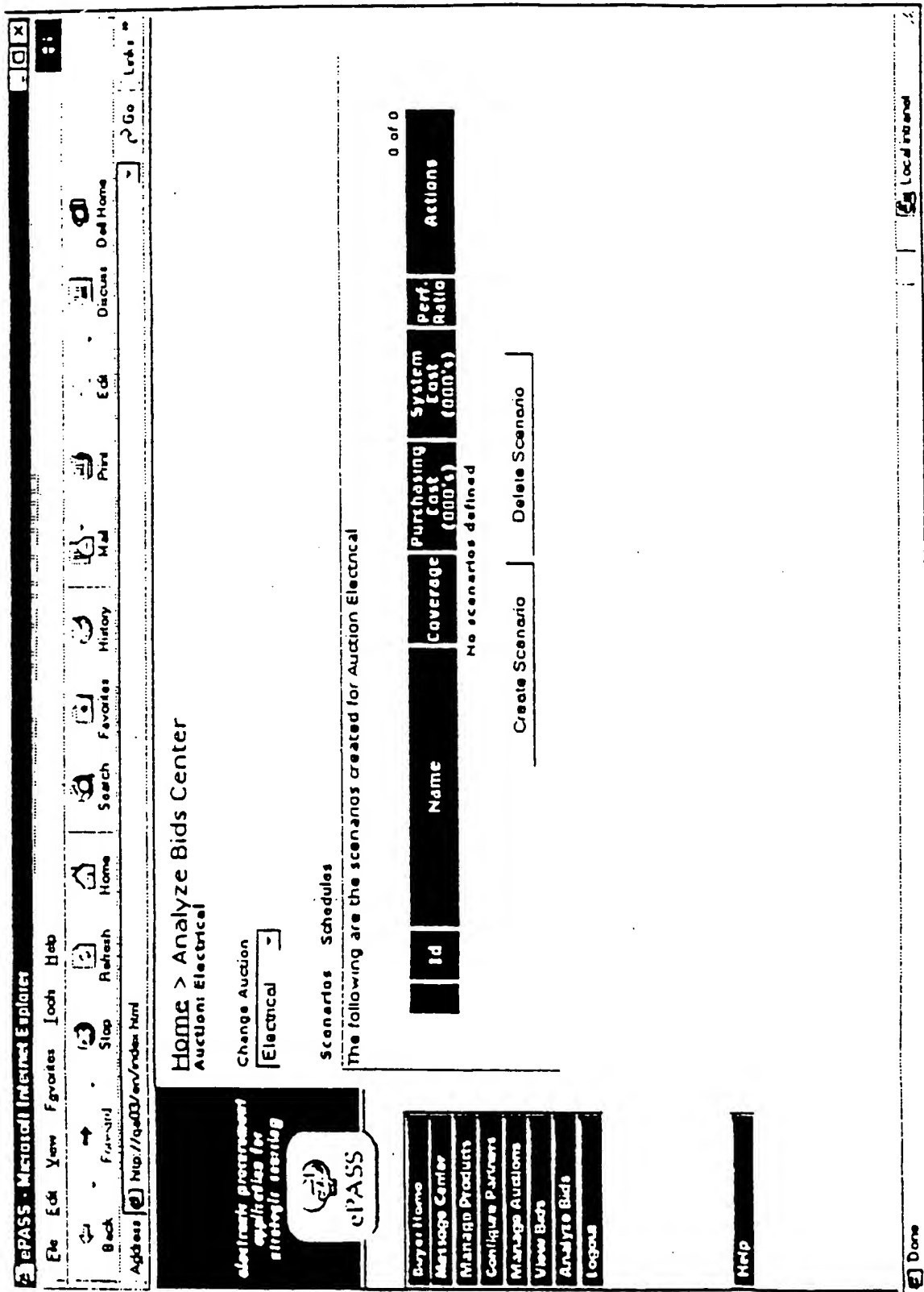


FIG. 21





**FIG. 22**

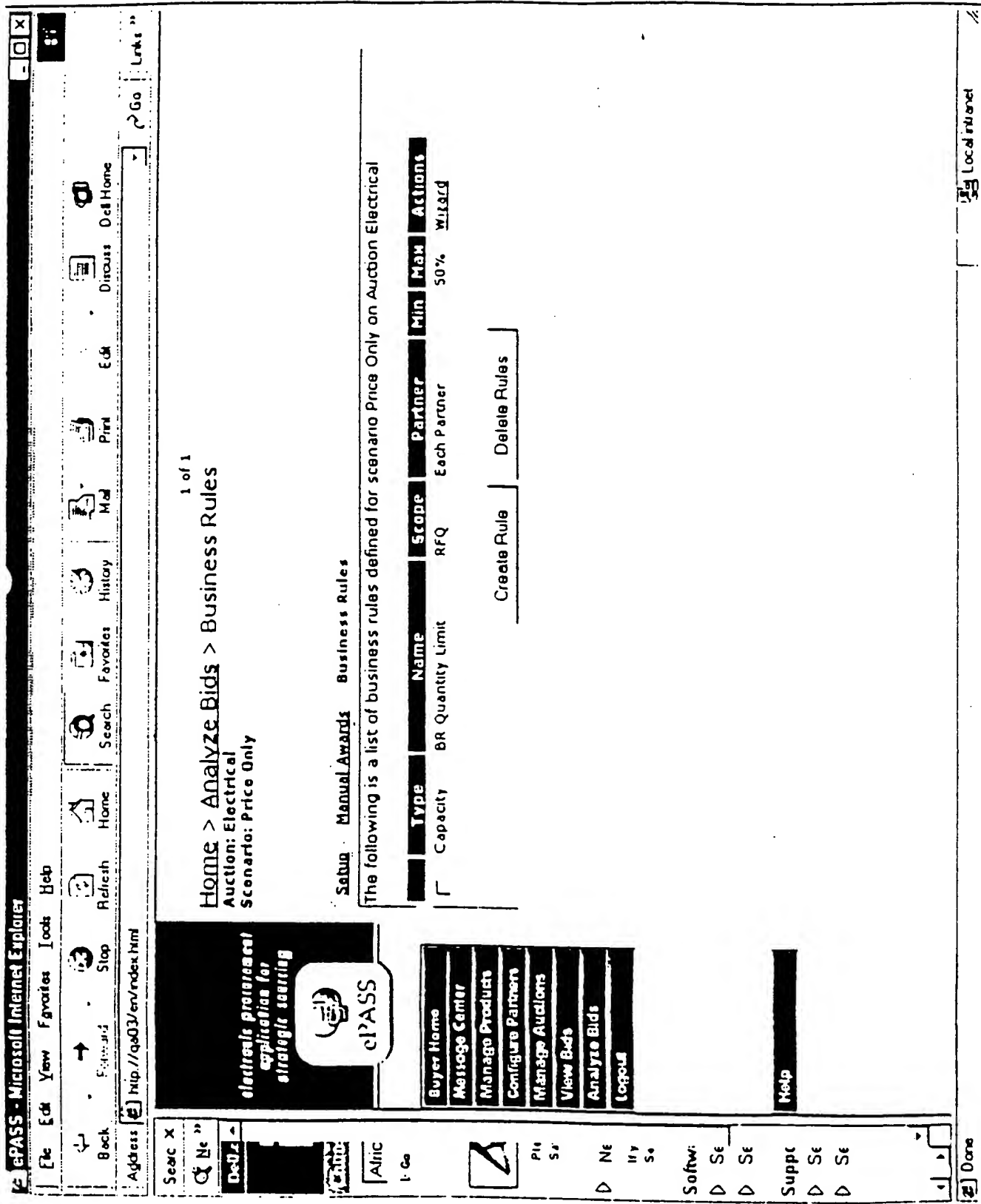


FIG. 23

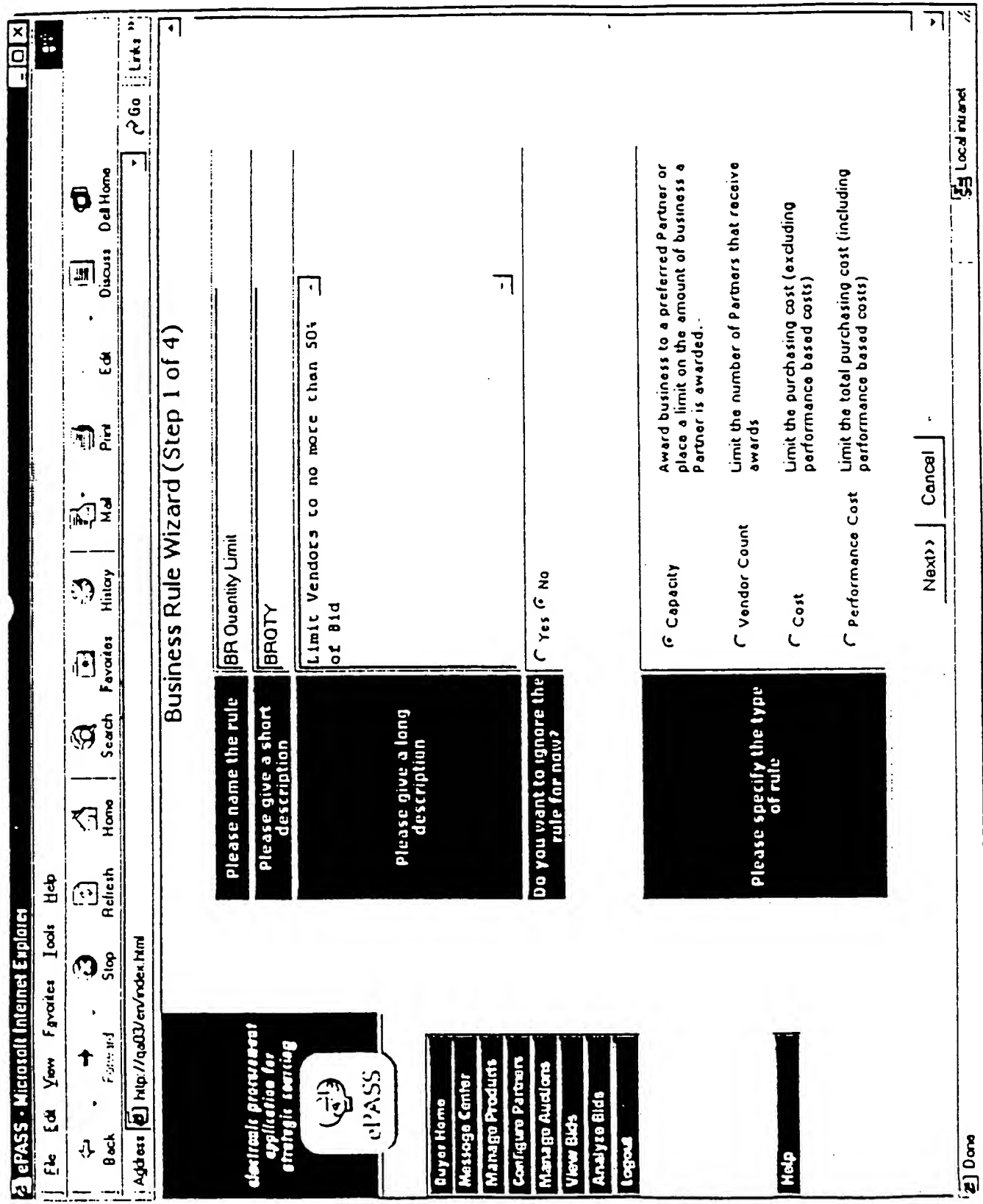


FIG. 24

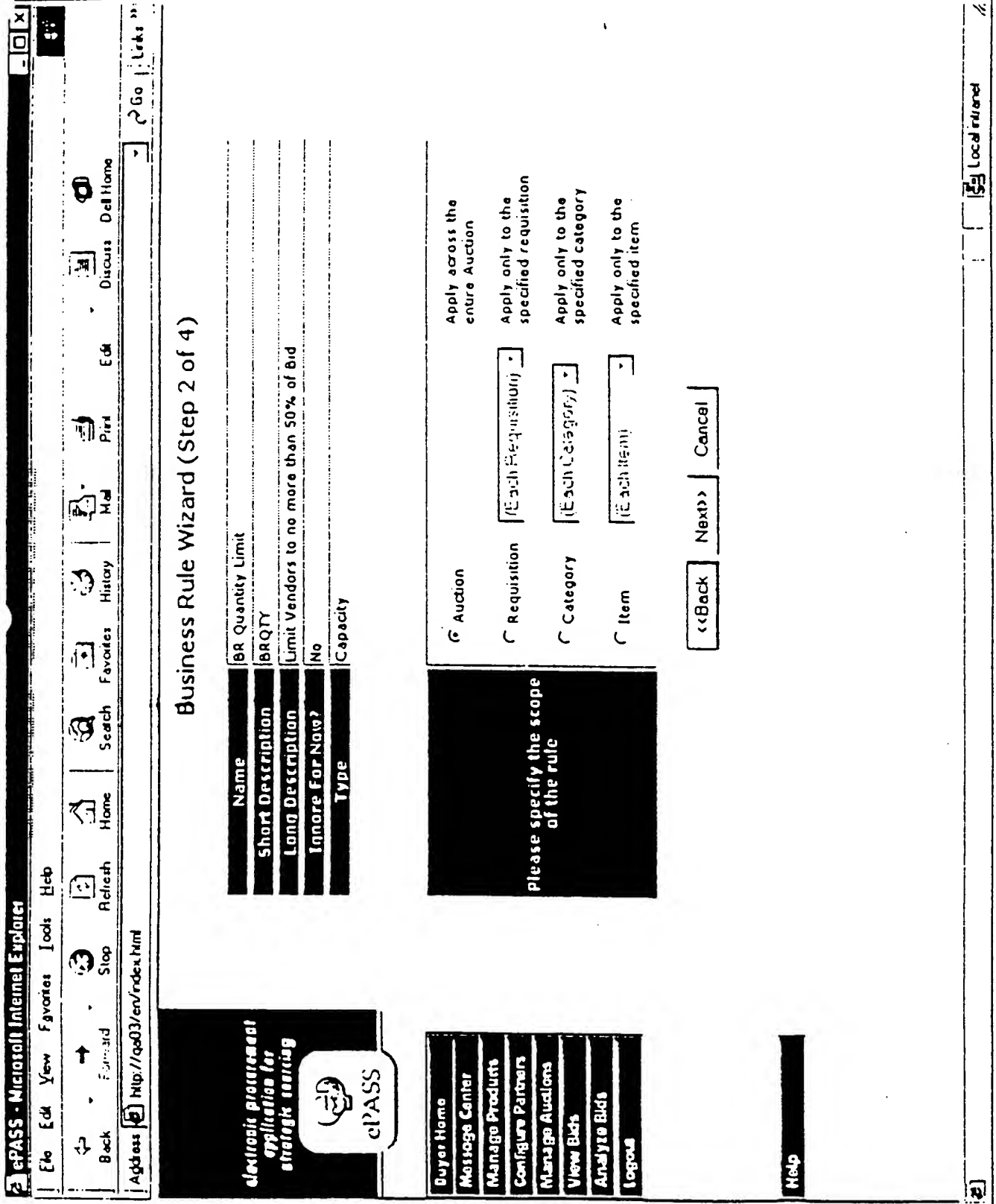


FIG. 25

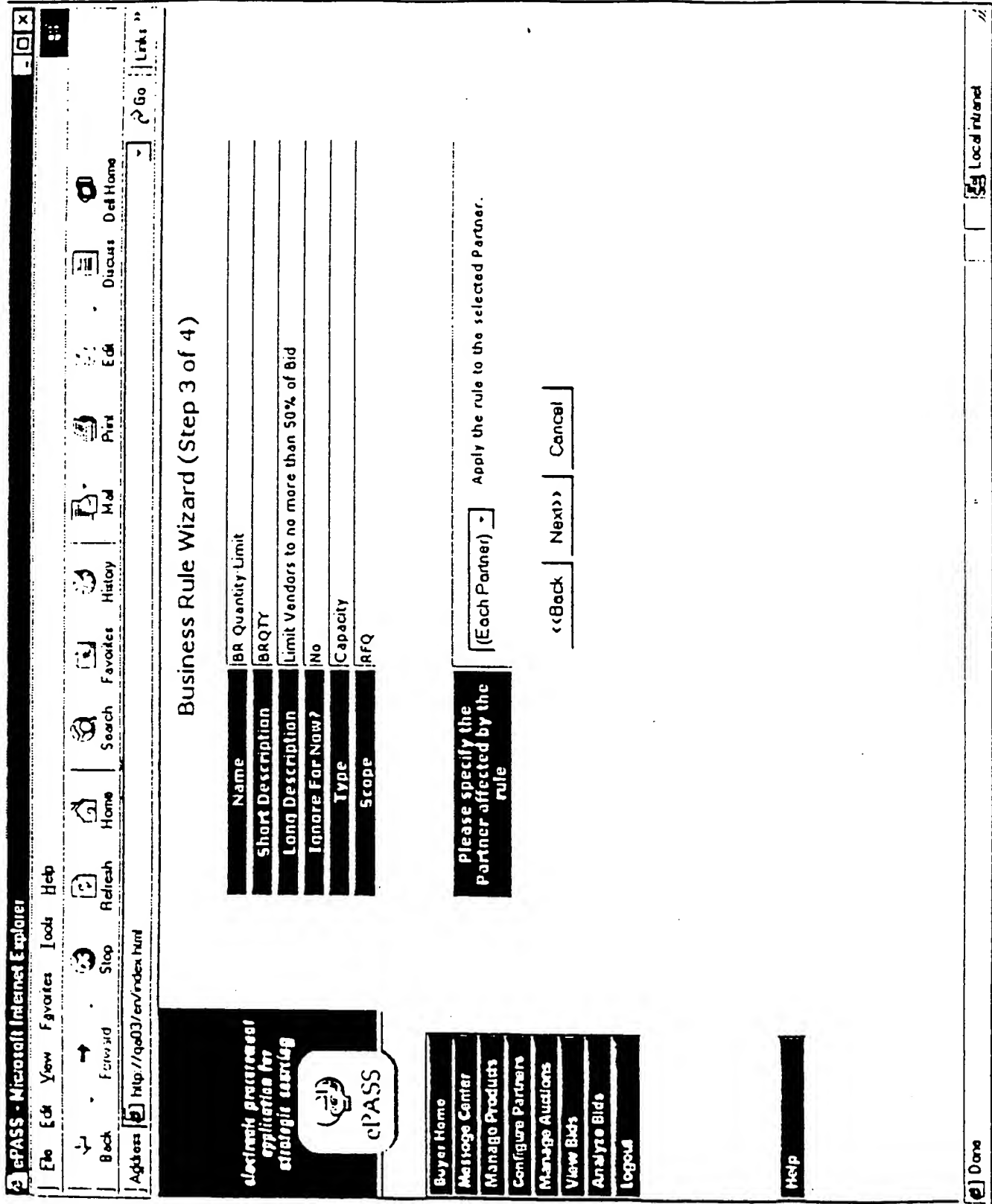


FIG. 26

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Buyer Home
Manage Center
Manage Products
Configure Partners
Manage Auctions
View Bids
Analyse Bids
Logout
Help

### Business Rule Wizard (Step 4 of 4)

Name	BR Quantity Limit
Short Description	BRQTY
Long Description	Limit Vendors to no more than 50% of Bid
Ignore For Now?	No
Type	Capacity
Scope	RFQ
Partner	Each Partner

Please specify the minimum and/or maximum value that should be awarded

Select the units the minimum/maximum value are specified in <input type="radio"/> Units <input checked="" type="radio"/> Dollars <input type="radio"/> Percentage	Specify this value if you require the Partner to be awarded a certain amount. You can leave this field blank if there is no required minimum. For percentage, specify 0.5 for 50%.
Minimum Amount to Award	<input type="text" value="0.5"/>
Maximum Amount to Award	Specify this value if you want to limit the maximum amount awarded to the organization. You can leave this field blank if there is no maximum. For percentage, specify 0.5 for 50%.

Back
Finish
Cancel

Done
Local intranet

FIG. 27

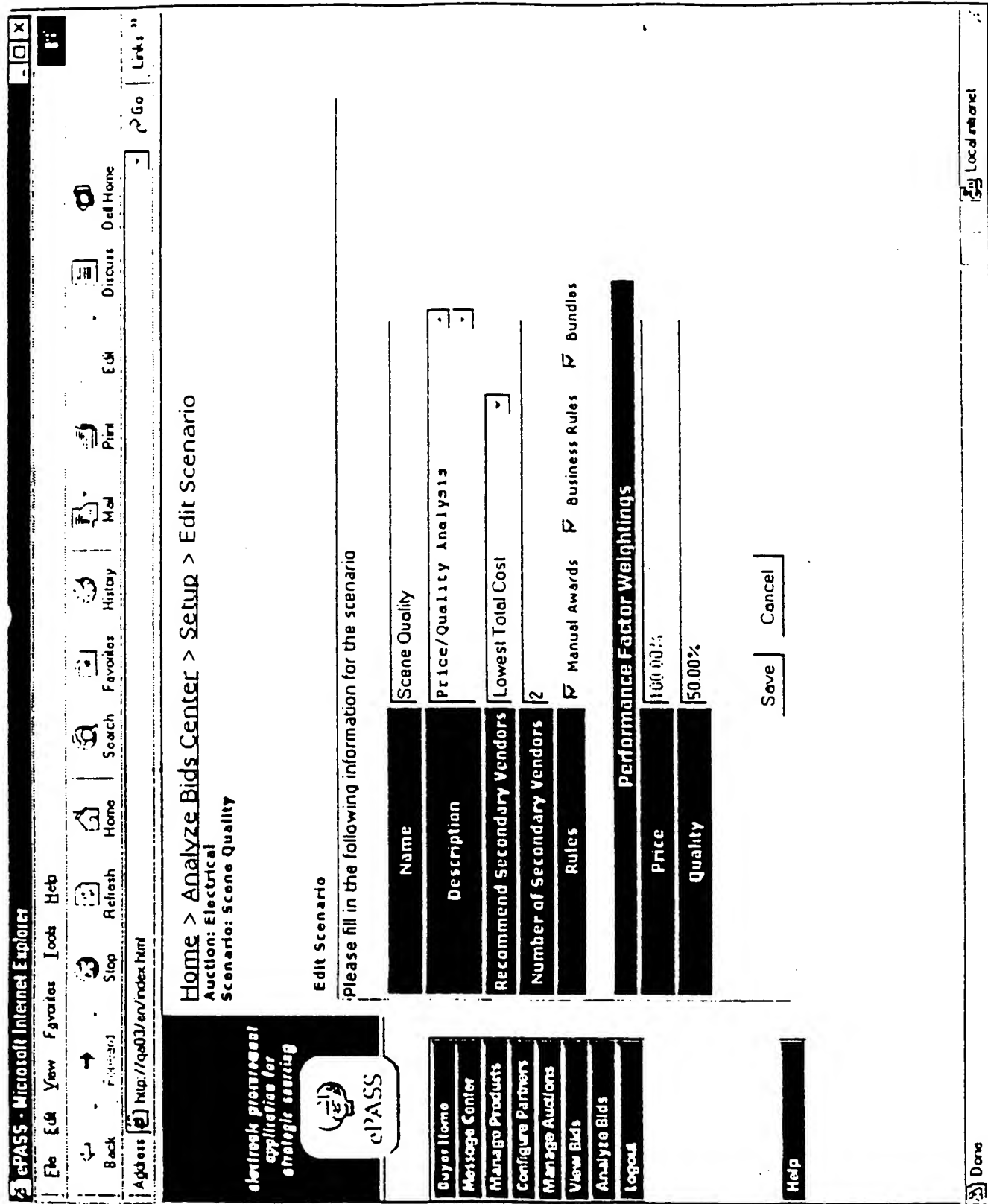
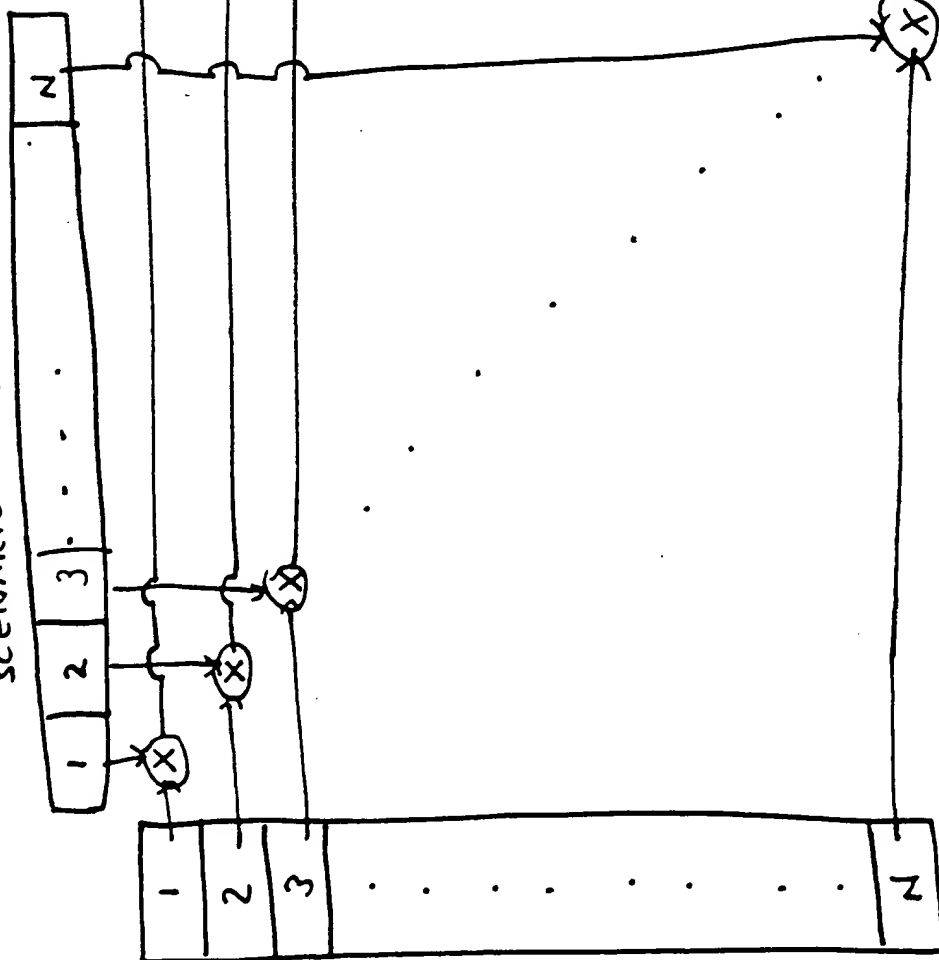


FIG. 28

FIG. 29

BUYER DEFINED  
SCENARIO WEIGHTS



PERFORMANCE  
ATTRIBUTE  
FROM DATABASE

FIG. 29



$$\sum_{s \in S} \left\{ \sum_{b(s) \in B(s)} \left[ f_{b(s)}^i \chi_{b(s)}^i + c_{b(s)}^i x_i^i \right] + \sum_{d(s) \in D(s)} f_{d(s)} \sum_{i \in d(s)} z_{d(s)}^i + c_{d(s)}^i z_i^i \right\} +$$

$$\sum_{k \in K} \sum_{i \in I} w_{k,i} \left\{ \sum_{s \in S} \left( \frac{100 - r_{k,i}^j}{100} \right) \left[ \sum_{b(s) \in B(s)} c_{b(s)}^i x_i^i + \sum_{d(s) \in D(s)} c_i^i z_i^i \right] \right\}$$

FIG 30

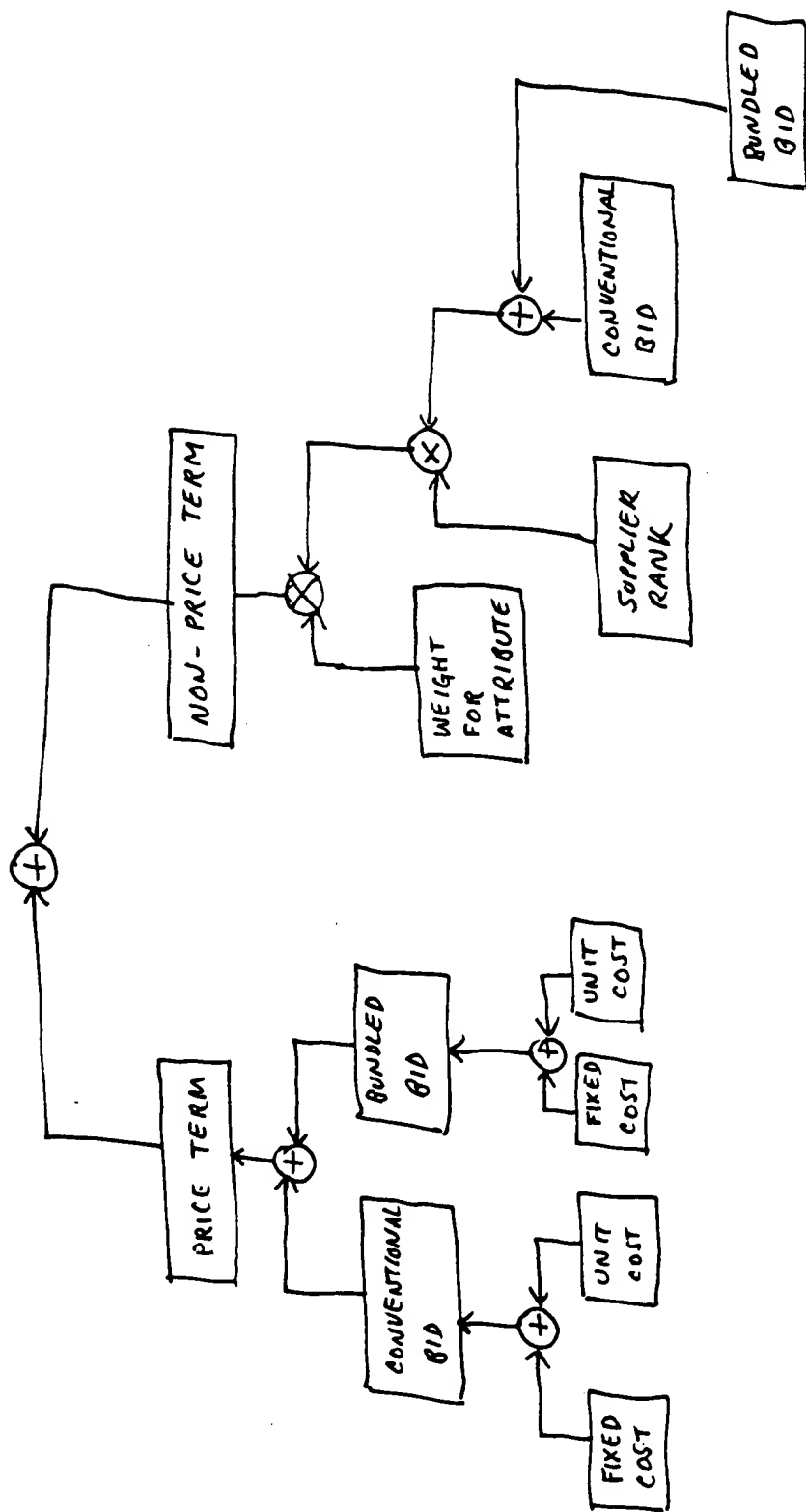


FIG. 31

$$\sum_{s \in S} \left( \sum_{b(s) \in B(s)} x_i^{b(s)} + \sum_{d(s) \in D(s)} z_i^{d(s)} \right) \leq Q_i^u \quad \forall i \in I \quad (1)$$

$$\sum_{s \in S} \left( \sum_{b(s) \in B(s)} x_i^{b(s)} + \sum_{d(s) \in D(s)} z_i^{d(s)} \right) \geq Q_i^l \quad \forall i \in I \quad (2)$$

$$\sum_{i \in g} \left( \sum_{b(s) \in B(s)} x_i^{b(s)} + \sum_{d(s) \in D(s)} z_i^{d(s)} \right) - Y_g^s M_g \leq 0 \quad \forall s \in S, \forall g \in G \quad (3)$$

$$\sum_{i \in g} \left( \sum_{b(s) \in B(s)} x_i^{b(s)} + \sum_{d(s) \in D(s)} z_i^{d(s)} \right) - Y_g^s \geq 0 \quad \forall s \in S, \forall g \in G \quad (4)$$

$$\sum_{s \in T} Y_g^s \leq \text{Max } N_g^t \quad \forall g \in G, \forall t \in T \quad (5)$$

$$\sum_{s \in T} Y_g^s \geq \text{Min } N_g^t \quad \forall g \in G, \forall t \in T \quad (6)$$

**FIG. 32**

$$\sum_{s \in T} \sum_{i \in g} \sum_{\tau} \left( \sum_{b(s) \in B(s)} x_i^{b(s)\tau} + \sum_{(s)\rho} z_i^{(s)\rho} \right) \leq \max_g Q_g^T \quad \forall g \in G, \quad \forall \tau \in T \quad (7)$$

$$\sum_{s \in T} \sum_{i \in g} \left( \sum_{b(s) \in B(s)} x_i^{b(s)\tau} + \sum_{(s)\rho} z_i^{(s)\rho} \right) \geq \min_g Q_g^T \quad \forall g \in G, \quad \forall \tau \in T \quad (8)$$

$$\sum_{s \in T} \sum_{i \in g} \left( \sum_{b(s) \in B(s)} c_i^{b(s)} x_i^{b(s)} + \sum_{d(s) \in D(s)} c_i^{d(s)} z_i^{d(s)} \right) \leq \max_g V_g^T \quad \forall g \in G, \quad \forall \tau \in T \quad (9)$$

$$\sum_{s \in T} \sum_{i \in g} \left( \sum_{b(s) \in B(s)} c_i^{b(s)} x_i^{b(s)} + \sum_{d(s) \in D(s)} c_i^{d(s)} z_i^{d(s)} \right) \geq \min_g V_g^T \quad \forall g \in G, \quad \forall \tau \in T \quad (10)$$

FIG. 33

$$(11) \quad z_i^{d(s)} - u_i^{d(s)} z^{d(s)} \leq 0 \quad \forall i \in I, \forall s \in S, \forall b(s) \in B(s)$$

$$(12) \quad z_i^{d(s)} - l_i^{d(s)} z^{d(s)} \geq 0 \quad \forall i \in I, \forall s \in S, \forall b(s) \in B(s)$$

$$(13) \quad x_i^{b(s)} - x^{b(s)} u_i^{b(s)} \leq 0 \quad \forall s \in S, \forall b(s) \in B(s)$$

$$(14) \quad x_i^{b(s)} - x^{b(s)} l_i^{b(s)} \geq 0 \quad \forall s \in S, \forall b(s) \in B(s)$$

$$(15) \quad 0 \leq x_i^{b(s)} \leq u_i^{b(s)} \quad \forall s \in S, \forall b(s) \in B(s)$$

$$(16) \quad 0 \leq z_i^{d(s)} \quad \forall d(s) \in D(s)$$

$$(17) \quad x^{b(s)} = \begin{cases} 0 \\ 1 \end{cases} \quad \forall b(s) \in B(s)$$

$$(18) \quad y_g^s = \begin{cases} 0 \\ 1 \end{cases} \quad \forall g \in G, \forall s \in S$$

$$(19) \quad z_g^s = \begin{cases} 0 \\ 1 \end{cases} \quad \forall g \in G, \forall s \in S$$

**FIG. 34**

```

if  $p > p^*$  then
     $indicator = P$ 
else if  $O > O^*$  then
     $indicator = F$ 
else
     $indicator = C$ 

```

```

if  $O < O^*$  then
     $indicator = C$ 
else if  $p \geq p^*$ 
{
    if  $[O - p \geq O^*]$ 
         $indicator = F$ 
    else
         $indicator = P$ 
}
else
     $indicator = F$ 

```

**FIG. 35**

if ( $O < O^*$ )  
     $indicator = C$ ;  
else if ( $p \geq ALL(p^i)$ )  
{  
    if ( $(O - p) \geq ALL(O^i)$ )  
         $indicator = F$ ;  
    else  
         $indicator = P$ ;  
}  
else  
     $indicator = F$

***FIG. 36***

```

if ( $O < O^*$ )
     $indicator = C$ ;
else if ( $O > ALL(O^i)$ )
{
    if ( $p < p^*$ )
         $indicator = F$ ;
    else if ( $(O - p) \geq ALL(O^i)$ )
         $indicator = F$ ;
    else if ( $p > ALL(p^i)$ )
    {
        if ( $R > ALL(R^i)$ )
             $indicator = PF$ ;
        else
             $indicator = P$ ;
    }
    else
         $indicator = F$ ;
}
else
{
    if ( $p < p^*$ )
         $indicator = FC$ ;
    else if ( $R < R^*$ )
         $indicator = PC$ ;
    else
         $indicator = PFC$ ;
}

```

**FIG. 37**